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PLANT IMMIGRANTS

No. 210

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GENERA REPRESENTED IN THIS NUMBER

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Foreign Seed and Plant Introduction

E X P L A N A T O R Y N O T E

PLANT IMMIGRANTS is designed principally to call the attention of plant breeders and experimenters to the arrival of interesting plant material. It should not be viewed as an announcement of plants available for distribution, since most introductions have to be propagated before they can be sent to experimenters. This requires from one to three years, depending upon the nature of the plant and the quantity of live material received. As rapidly as stocks are available, the plants described in this circular will be included in the Annual List of Plant Introductions, which is sent to experimenters in late autumn. Introductions made for a special purpose (as for example to supply Department and other specialists with material needed in their experiments) are not propagated by this Office and will not appear in the Annual List.

Descriptions appearing here are revised and later published in the Inventory of Seeds and Plants Imported, -the permanent record of plant introductions made by this Office.

Plant breeders and experimenters who desire plants not available in this country are invited to correspond with this Office which will endeavor to secure the required material through its agricultural explorers, foreign collaborators, or correspondents.

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Office of Foreign Seed and Plant Introduction.*

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BUDDLEIA ASIATICA (Loganiaceae), 57885. From Darjiling, India. Seeds presented by G. H. Cave, curator, Lloyd Botanic Garden. A very graceful evergreen shrub or small tree, common throughout India and the Malay Peninsula, with narrow leaves up to 8 inches in length. For three months, in India, the long, slender racemes of white, sweet-scented flowers fill the air with delightful fragrance. (Adapted from Curtis's Botanical Magazine, pl. 6323.)

CITRUS NOBILIS PAPILLARIS (Rutaceae), 57854. From Manila, Philippine Islands. Budwood presented by P. J. Wester, Bureau of Agriculture. "A small spreading tree, attaining a height of 6 meters or more, in habit similar to the pomelo; spines small, or wanting; leaves 10 to 14 centimeters long, 5 to 6 centimeters broad, ovate to elliptical-oblong, crenate, dark green and shining above, crinkly, base broadly acute, apex narrowly acute to almost acuminate and caudate; petioles 17 to 20 millimeters long with narrow winged margin; flowers not seen; fruit large, from 6 to 10 centimeters in diameter, 170 to 580 grams in weight, somewhat compressed at basal half, usually ending in a more or less conspicuous nipple which, however, is sometimes wanting; apex flattened, or even depressed; surface smooth, pale greenish turning to orange yellow; skin medium thin; locules 10 to 11, separable from each other and the skin like the mandarin; pulp yellowish, subacid, very juicy, and of good flavor with marked 'quinine' taste; juice cells large; seeds very few, rarely more than seven.

"The tizon is extremely rare and only a few trees are found in cultivation, confined to the citrus district of Batangas, Luzon. The trees are said to be quite prolific, and the fruit matures from September to December. This fruit, on account of its scarcity, is of no commercial importance. However, it would be an acceptable dessert or breakfast fruit, being a little more acid than the orange. It is said to be an introduction from Spain. The tizon is without doubt the *Citrus papillaris* described by Blanco in 'Flora Filipinas.'

"The tizon is believed to be a natural hybrid between the mandarin and the pomelo. It has inherited the loose-skinned character, large juice cells, the partial absence of spines, and leaf character of the first-named species to which it is (without the writer having had the opportunity to examine the flowers) unquestionably more closely related than to any other species in the genus." (Wester.)

CROTALARIA spp. (Fabaceae), 57830 and 57831. From Buitenzorg, Java. Seeds presented by Dr. P. J. S. Cramer, director, General Experiment Station, Department of Agriculture. Quoted notes by Dr. Cramer.

57830. **CROTALARIA ANAGYROIDES**. "This species is now given preference here in Java as green manure; it produces more vegetation and does not layer so easily. It is especially satisfactory in higher altitudes,

and is in such great demand for the tea plantations in the higher mountains that we have to limit our seed distributions to small quantities."

57831. *CROTALARIA USARAMOENSIS*. "Although I introduced this from East Africa as a fiber plant, it does not seem to be very promising as such. It has proved very successful, however, as a green manure, when grown in alternation with corn, producing large quantities of vegetation rich in nitrogen. In the cinchona plantations it is very satisfactory, as it endures partial shade and forms a dense, low growth, which keeps the edges of the terraces together."

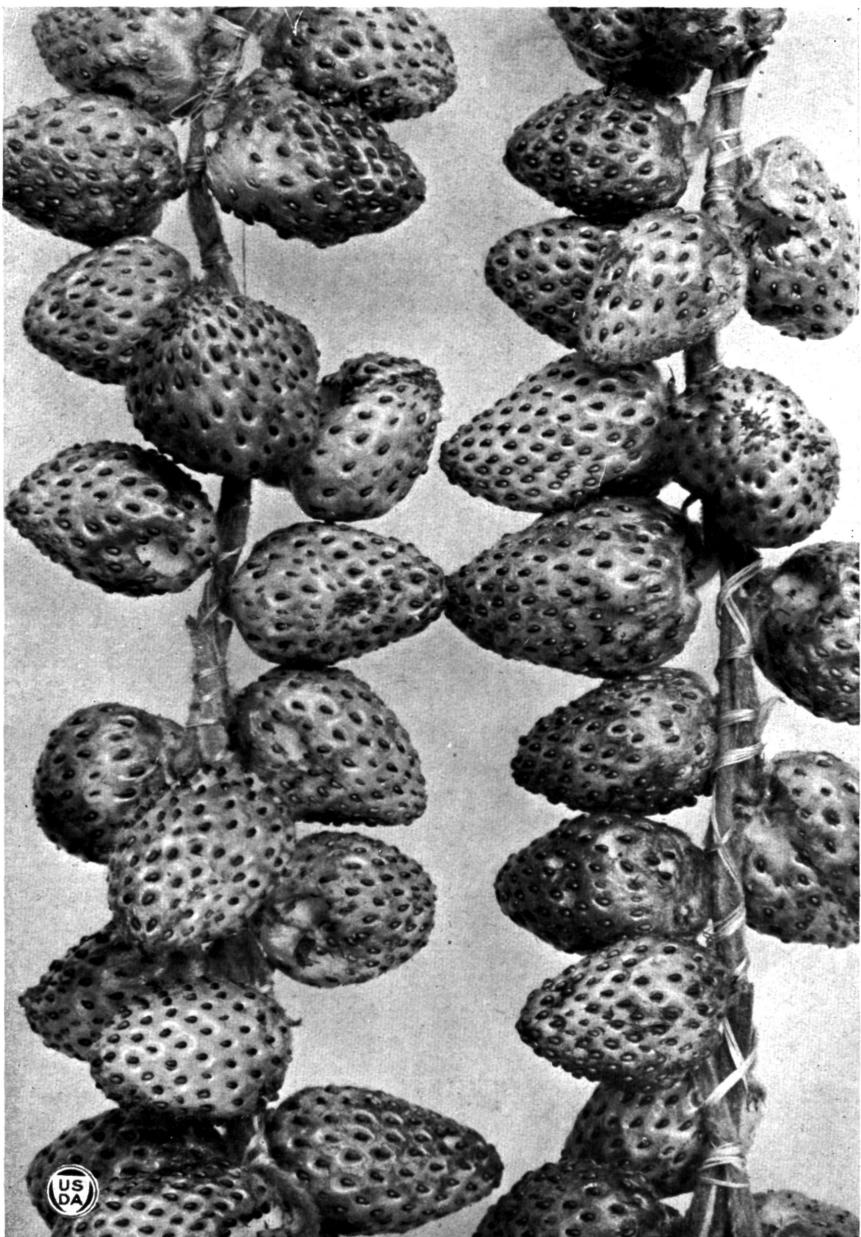
EDGEWORTHIA GARDNERI (Thymeliaceae), 57887. From Darjiling, India. Seeds presented by G. H. Cave, curator, Lloyd Botanic Garden. A handsome shrub whose branches are covered with dense clusters of yellow, sweet-scented flowers before the leaves appear. The strong, tough fiber which is obtained from the long, straight twigs seems very promising as paper making material. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 3, p. 202.)

GLADIOLUS SEGETUM (Iridaceae), 57858. From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. "One of the most beautiful wild flowers around here; it might be very valuable for hybridizing." (Proschowsky.)

A European gladiolus of free habit with rather small rose-purple flowers, thriving in a warm dry soil and in a sunny situation. It is an admirable species for mixed borders. (Adapted from Robinson, English Flower Garden, p. 577.)

MUSA PARADISIACA SEMINIFERA (Musaceae), 57859. Plantain. From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. A wild, seed-bearing form of the plantain, with small, oblong, greenish fruits full of seeds. These fruits are about a third of the size of the common banana, and are of pleasant taste, although encumbered by numerous seeds. The plant is quite ornamental, and hardier than the common banana, so that it may be possible, by selection or hybridization, to extend the range of banana culture into cooler regions. (Adapted from Bailey, Standard Cyclopedia of Horticulture, vol. 4, p. 2079, and from letter of Dr. A. Robertson Proschowsky, June 30, 1917.)

QUERCUS DISCOCARPA (Fagaceae), 57856. From Buitenzorg, Java. Seeds presented by the Director, Botanic Garden. A lofty tree, 100 to 130 feet in height, with leathery, narrowly oval leaves about 5 inches in length, and small, spiny-cupped, hemispherical or roundish acorns about half an inch long. The tree is native to the Federated Malay States. (Adapted from Annals of the Royal Botanic Garden, Calcutta, vol. 2, p. 76.)

**THE CHILEAN STRAWBERRY AS MARKETED IN COLOMBIA.**

(*Fragaria chiloensis* (L.) Duchesne; S. P. I. No. 51563.)

Throughout the high Andes, from Colombia southward, the Chilean strawberry is esteemed one of the choicest of all fruits. In Colombia, where it is not common, the berries occasionally appear in the Bogota market tied together by their stems to form strings a foot or more in length. Two varieties are recognized in Colombia—one having fruits of deep pink color, the other ivory white. (Photographed by Wilson Popenoe at Bogota, Colombia, September 20, 1920; P18082FS.)



A NITROGEN-GATHERING SHRUB FROM THE COMORO ISLANDS.

(*Psychotria bacteriophila* Valeton; S. P. I. No. 44273.)

Though similar to the leguminous plants in that it harbors bacteria which gather nitrogen from the air, it is totally unlike them in that these bacteria live in cavities in the leaves instead of in the roots. This fact gives a particular interest to the plant and suggests its possible value as a humus and nitrogen maker for the sandy pinelands of southern Florida, where it grows very well. Its brilliant red berries, produced in winter, make it an attractive greenhouse plant comparable to the ardisia. (Photographed by P. H. Dorsett, Buena Vista, Fla., November 7, 1921; P27437FS.)

VERONICA HULKEANA (Scrophulariaceae), 57860. From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. One of the handsomest and most graceful of all the New Zealand veronicas, and easily distinguished from others of the group by its shining, dark-green, coarsely toothed leaves about 2 inches long, and its long sprays of lilac-colored flowers which are in panicles sometimes a foot in length. (Adapted from Laing and Blackwell, Plants of New Zealand, p. 383, and from Bailey, Standard Cyclopedia of Horticulture, vol. 6, p. 3455.)

The Favorita Pear
(S.P.I. No. 33207)

In January, 1912, Walter T. Swingle, of the Office of Crop Physiology and Breeding Investigations, Bureau of Plant Industry, was in Spain engaged upon agricultural exploration work. Dr. Swingle visited the old and well-known nurseries of Pedro Giraud at Granada, Spain. He placed an order with this firm for cuttings, scions, and grafts of a number of promising new fruit, nut, ornamental, and shade trees. Among the lot were two small trees of a pear called "Favorita" by Giraud. The collection was received March 23, 1912. The two little pear trees, after being inventoried under S.P.I. No. 33207, were sent to Chico, Calif., and planted in the test orchard of the Plant Introduction Garden at that place. The only description we had of the pear was published in Plant Inventory No. 30, page 83, as follows:

33207. "Favorita. This pear is described as follows: Fruit very large, lemon yellow, flesh buttery, sweet, savory. Ripens the middle of August. A summer pear."

Three years after the little pear trees were planted, or in 1915, fruit was produced and it showed such valuable characters that five hundred trees were ordered propagated. From time to time other samples of fruit were received and its fine quality noted. In the summer of 1920 we visited the Garden, and while there our attention was called to this pear by W. F. Wight, of the Office of Horticultural Investigations, who was then stationed at Chico. Mr. Wight had been using the Favorita pear in his breeding work and was struck with its excellent quality. From 1915 to 1922 the propagation was continued and something like fifteen hundred small trees were distributed. These were sent into nearly every state in the Union, the heaviest distributions being on the Pacific Coast, in the Southern States, and states of the Ohio Valley. This year, 1923, a large crop of fruit was produced by the mother trees at Chico and opportunity for a more critical study was therefore afforded. From all the samples received, studied here, and submitted to experts for their opinions, it seems that the fruit of our S.P.I. No. 33207 so closely resembles the well-known Clapp Favorite as to be indistinguishable from that fruit. The time of ripening,

size, color, shape, character of the flesh, taste, and aroma are all typical of Clapp Favorite. The pear trees at Chico, however, differ in two essential and important ways from Clapp Favorite. The trees of the latter, as they grow older, usually become rough and shaggy, the branches being overspread with gray scurfy skin. Clapp Favorite is very subject to fire blight; in fact, this dread disease has practically limited one of our finest pears to a very few locations. Doctor Hedrick, in his "Pears of New York," says:

"Except in one particular, the trees of Clapp Favorite are as nearly perfect as those of any fruit in American orchards. The weak character, unfortunately, is a most important one, and all but debars the variety from some regions in which pear-growing is a large industry. The weakness is susceptibility to blight. No standard pear goes down so quickly as this one when blight is epidemic."

Up to this time, after the lapse of eleven years, the parent trees of S.P.I. No. 33207 at Chico show no evidence of bark roughness and have been practically free from fire blight. This disease has attacked other trees nearby, especially Bartlett, proving severe in some cases. Speaking of the probable resistance of the Favorita to blight, Mr. Wight, in one of his letters, says:

"It has this indication in its favor. One year I made a few Bartlett crosses. I gathered my pollen before the flowers opened and I suspect I may have secured a little pollen from an infected bud, as that spring the Bartlett pears developed a good deal of blight. At any rate every twig on which I used that pollen blighted three or four inches, then stopped."

Recognizing that the real test of a tree like the Favorita pear to stand up under blight is a field trial under widely varying conditions of soil and climate, it became of interest to know what had happened to the trees that had been distributed, or at least representative selections that would clearly cover the widest variations of soil and climate. Accordingly, early in August of this year two hundred names of experimenters were selected from those that had received trees and inquiries were sent to them asking for data as to the condition of the trees, and especially whether they had shown any evidence of fire blight. To make sure that fire blight might not be confused with other diseases, a brief summation of the more important characters of fire blight was given on the questionnaire card sent out. One hundred and fifteen reports have been received; one hundred experimenters reported that the trees grown by them had shown no evidence of fire blight; fifteen reported blight and the remaining eighty-five have not yet been heard from. Not a single case of blight was reported from the Pacific Coast where more than seven hundred and fifty trees have been distributed. Texas received, in the nine years of the distribution, one hundred and thirty-three trees. Ten experimenters selected to report on the trees

received sixty-five trees. All these experimenters reported. Of the ten receiving trees, seven reported blight and three reported absence of the disease. The seven reporting blight were sent thirteen trees; the three reporting absence of blight received fifty-two trees. No blight, whatsoever, was reported from the states of Missouri, Illinois, Indiana, Ohio, Pennsylvania, New York, and the New England States. No blight was reported from Louisiana, Mississippi, and Florida. There was one report of blight from Arkansas, also one from Georgia, one from South Carolina, and one from North Carolina.

Inoculations of young trees of the Favorita pear with pear-blight organisms were made for us at Bell, Md., through the cooperation of Dr. M. B. Waite, Bureau of Plant Industry. These inoculations were successful, the wood blighting badly. Inasmuch as practically all of our cultivated pears behave in this way when inoculated under favorable conditions, the results secured should not condemn the Favorita. As already pointed out, the field test under normal conditions would seem to be the most dependable criterion of disease resistance. Altogether the showing for this pear appears favorable, warranting, we believe, its further propagation and distribution for testing. This may best be secured by top-working old trees of other varieties where available. Kieffer and Le Conte trees would serve well for this purpose. Limited quantities of wood of the Favorita will be available for this work.

The fruit of the Favorita is large, usually from $3\frac{1}{2}$ to 4 inches long, and 3 to $3\frac{1}{2}$ inches in diameter. It ripens from a week to ten days ahead of Bartlett. The flesh is tender, melting, juicy, and sweet. There can be no question as to the value of a pear as good as Clapp Favorite with the ability to resist fire blight. Next to Bartlett, Clapp Favorite is the pear par excellence of this country. We have no data as to the origin of the Favorita pear. Clapp Favorite, originating at Dorchester, Mass., was widely distributed and, doubtless, trees of it reached Europe more than fifty years ago. Dr. W. A. Taylor, Chief of the Bureau of Plant Industry, informs us that a number of seedlings of Clapp Favorite have been grown and distributed. It may be that some of these seedlings were sent abroad and grown there under different names. It would be remarkable indeed if one of these seedlings, without ever being given a chance to show its blight resistance here, should have been sent to a foreign land where there is no blight only to find its way back here to the home of its ancestors where it may yet prove one of our great blessings. Such is the romance of plant introduction.

B. T. Galloway.

Notes on Behavior of Previous Introductions.

ACER TRUNCATUM (Aceraceae), 18578. Maple. From the vicinity of Peking, China. "A very attractive maple. Just now a few of its leaves

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are turning scarlet, and in about two weeks it will be a thing of beauty with its green, pink, and scarlet foliage, which will hang on until December. I do not know of any other deciduous tree which can compare with it. Unlike other Japanese maples it is exceedingly hardy, enduring perfectly long-continued cold, heat or drought." (J. W. Riggs, Waterloo, Kans., September 19, 1923.)

AMYGDALUS PERSICA (Amygdalaceae), 33219. Peach. "Vainqueur." From Granada, Spain. "This tree is very attractive in the spring, and ripens a heavy crop of delicious, red-cheeked fruits about the first of July, which is very early for this part of the country. The soil is sandy, with no irrigation." (O. M. Pudor, Puyallup, Wash., August, 1923.)

"The tree, which you sent us several years ago, has borne a few peaches in previous years, but this year had its first good crop. It is the earliest variety we have, being three or four days earlier than the Mayflower. The fruit is of good quality for its season and very attractive for a white-fleshed peach. Of chief interest to us is the fact that it is hardy while in bud, our experience showing that it is almost equal to the Greensboro in this respect." (J. K. Shaw, Research Professor of Pomology, Massachusetts Agricultural College, Amherst, Mass., August 8, 1923.)

"The Vainqueur peach ripens with the Mayflower, and is a white-fleshed clingstone (i.e., clingstone in shipping condition but almost freestone when dead ripe on the tree), juicy and a little stringy, of fair quality, a little better than Mayflower. It is oval while Mayflower is nearly round. The skin is yellowish with a bright carmine blush and streaks and blotches of crimson. The yield is good. Our judgment is that it is not worthy of extended cultivation for commercial use, but it is to be preferred to the Mayflower for an early-ripening variety for the home orchard." (C. H. Conners, Associate in Plant Breeding, Agricultural Experiment Station, New Brunswick, N. J., August 1, 1923.)

AMYGDALUS PERSICA (Amygdalaceae), 43129, 43132, 43137. Peach. From Avondale, Auckland, New Zealand.

43129. "'Late Champion.' This variety endures the winters here very well, and is very prolific. The large fruits have firm flesh of good flavor, and will stand shipping well. Season later than Up-to-date (S.P.I. No. 43137)." (C. S. Fouse, Mount Union, Pa., September 1, 1923.)

43132. "'Motions Cling.' Planted in 1919, the tree fruited this year, bearing a moderately heavy crop. The fruits are large, roundish, smooth, with a yellowish skin blotched with dark red over about two-thirds of the surface. The fine, firm, juicy flesh is yellow, with red at the pit, and is of good quality. Season begins about the first of July." (Benjamin Buckman, Farmingdale, Ill., September 1, 1923.)

43137. "'Up-to-date.' The tree has endured a winter temperature of 10° F. below zero, and bears fruits of good size and flavor. Season early September. Not suited for long shipments." (C. S. Fouse, Mount Union, Pa., September 1, 1923.)

BUDDLEIA JAPONICA (Loganiaceae), 55077. From Paris, France. "By July of this year this plant had developed into a bush 3 feet high and since then has borne its long, drooping, terminal spikes of delicately tinted flowers, which are grayish lavender with touches of deeper color." (William Gamaliel Shepard, Guinea Mills, Va., September 5, 1923.)

CASSIA BICAPSULARIS (Caesalpiniaceae), 50654. *Cola de pato*. From El Barranquillo, Guatemala. "This tree has proved a 'golden gem'; bearing its yellow flowers from the beginning of December to the middle of March. I consider it my best flowering ornamental, and I have distributed hundreds of seedlings." (F. E. Betheuser, Coconut Grove, Fla., October 5, 1923.)

CHAMAEDOREA ELEGANS (Phoenicaceae), 49373. *Pacayito*. From Tucurú, Guatemala. "Without exception this is one of the most beautiful small palms which has been introduced into this country. It stands indoor culture very well, and its dark-green leaves look very healthy. I can recommend it as a fine table palm." (C. S. Fouse, Mount Union, Pa., September 1, 1923.)

HAEMATOXYLUM CAMPECHIANUM (Caesalpiniaceae), 43775. Logwood. From Cairo, Egypt. "The plant which I received in 1919 was rather tender, and was killed to the ground in March of the next year. Now, however, it is a fine tree, and valuable as an ornamental. I am distributing seedlings." (Scott Morris, Palmdale, Fla., September 20, 1923.)